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ABSTRACT

In order to provide access to individual educators and researchers in library science on the basis of their specializations and types of research, a project was undertaken to develop a Classification of Education and Research in Librarianship and Information Science (CERLIS). A review was conducted of the treatment of library science materials in a number of existing classification schemes and thesauri, among them Library of Congress Classification, Classification Research Group Classification, and the Thesaurus of Information Science and Technology. CERLIS, the scheme tested during this project, is a twice-revised version of the Classification Research Group's Classification of Library and Information Science. Established to classify people rather than documents, CERLIS is designed for self-classification by the individual to be classified. The test version of CERLIS was sent to a random sample of 100 full-time personnel in library education programs, and 28 persons responded with completed classification forms. Specialization profiles and tabulations of the responses were then drawn up. Though there were some problems with CERLIS, testing indicated that it can be used by educators and researchers to describe their specializations, courses, and research. A guide to CERLIS is appended, and six tables, four figures, and a 23-item reference list accompany the text. (Author/JL)

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CLASSIFICATION OF EDUCATION AND RESEARCH IN LIBRARIANSHIP AND INFORMATION SCIENCE

Report of a Project Submitted to the Board of Directors,

Association of American Library Schools

by

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June 1978

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CLASSIFICATION OF EDUCATION AND RESEARCH IN LIBRARIANSHIP AND INFORMATION SCIENCE

Table of Contents

Introduction and Background 1

Other Classifications 4

- Library of Congress Classification 4
- Dewey Decimal Classification 6
- Universal Decimal Classification 7
- Classification Research Group's Classification 8
- Libbey-Fry Classification. 9
- Intermediate Lexicon for Information Science 11
- Association of American Library Schools Classification 12
- Other Classifications. 12

Alphabetical Lists and Thesauri 13

- Library Literature 13
- Schultz' Thesaurus of Information Science and Technology. . . . 14
- Bernier's Thesaurus for Librarianship and Information Science, Services, and Systems 14
- Aslib's Compressed Term Index Language for Library and Information Science. 15
- The ALA Office for Research Classification of Library and Information Science 16

CERLIS 17

- Development and testing 20
- Responses 25
- Problems. 43
- Results 45

Appendix A: Guide to CERLIS: Classification of Education and Research in Librarianship and Information Science 47

References 61

Tables and Figures

Table 1. CERLIS Specialization Checklist 18-19

Table 2. Additional Categories for Teaching Methods. 21

Table 3. Additional Categories for Research Methods. 22-23

Table 4. Specializations as Described by Respondents using CERLIS. 26-27

Table 5. Course Content and Teaching Methods as Described by Respondents using CERLIS. 28-31

Table 6. Research Subject and Research Methods as Described by Respondents Using CERLIS 32-33

Figure 1. Profiles of Specializations, Courses and Research . . . 34-37

Figure 2. Profile of Teaching Methods 38-39

Figure 3. Profile of Research Methods 40-41

Figure 4. Analytical Index to Specializations (Example) 42

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INTRODUCTION AND BACKGROUND

Classification has many purposes. In a paper prepared for the Conference on Bibliographic Control of Library Science Literature, held at the State University of New York at Albany in 1968, Phyllis Richmond and Pauline Atherton identified six types of classification according to purpose.[1] These included classifications designed to arrange collections of documents on shelves or in files and their surrogates in catalogs, as well as the arrangement of contents within single documents. The sixth type was classification for directories of personnel and research projects. This paper focuses on this sixth type, and will describe the development and testing of a classification designed to characterize and provide access to persons on the basis of their specializations, the courses they teach, and their research.

In current theory, and to some extent in practice, the traditional distinctions between classification and indexing, or classification and "subject headings" have disappeared. In the broadest sense, classification is the assigning of concepts, or things or persons embodying these concepts,

to categories. It is usually assumed that these categories will be arranged in such a way as to provide access to the categories and their members. Such arrangement may be alphabetical, based on names assigned to categories, or may be based on relationships among categories. The "Elsinore definition" of classification, adopted at the Second International Study Conference on Classification Research, insists that classification must include a method for indicating relations among categories.[2] This is frequently done in alphabetical classifications (lists of subject headings, thesauri) by means of references, but this definition would exclude any alphabetical list of categories, such as those based only on words in titles or reference citations (citation indexing), where relationships among categories are not indicated. The purpose for this requirement is to allow searches and retrieval of specific items or concepts through either specific or generic (or quasi-generic) searches; in other words, to allow the location of specific items or concepts either by going directly to the category to which they have been assigned, or indirectly by going first to broader or related categories.

Richmond and Atherton also classify classifications on the basis of their structure, or how they were put together.[3] The basic choices are enumerative on the one hand and analytico-synthetic on the other. In enumerative systems, all categories for both simple and compound concepts are created in advance and are listed, either in an order to show their primary relationships, or alphabetically by category name, with relationships shown through references. Simple categories are "pre-coordinated" into compound, often complex, categories. In purely analytico-synthetic systems, only categories for simple concepts are listed, either in alphabetical or in a relational order. Categories for compound concepts are created later, as

needed, by combining (post-coordinating) simple categories. These systems are often called faceted, because the simple categories are often derived by considering one facet (or aspect) of a subject area at a time, and then determining the specific instances of that facet.

Most actual classifications are neither purely enumerative or purely analytico-synthetic, but usually the features of one type or the other predominate. The chief disadvantage of enumerative classifications is that only the most usual and easily foreseen compound categories are included. On the other hand, the most common compound categories are already created (pre-coordinated) and listed, so that the classifyer need only find them. He/she does not have to analyze a complex subject into its component parts, locate categories for these elements, and then re-combine them according to the design of the classification. The chief advantage of analytico-synthetic systems is that any compound category can be created, as long as the simple categories are present. On the other hand, compound categories must be created; they are not ready made.

Classification schemes also vary with respect to the specificity and the number of categories provided. These apsects are closely interrelated, and are also related to the purpose of the classification. However, it is difficult to compare enumerative with analytico-synthetic classifications in this regard. An enumerative classification has a definite number of categories, but an analytico-synthetic classification has the potential for an almost infinite number, since all categories can be added to all other categories, even though, in actuality, they are not.

At the present time, there are many classification systems for librarianship and/or information science. Verina Horsnell had identified more than fifty by the early 1970s.[4] The justification for

creating yet one more classification must be than none of the existing systems had both the desired purpose and structure. This new "Classification of Education and Research in Librarianship and Information Science" (CERLIS for short) has as its purpose the characterization of library and information science (LIS hereafter) educators and researchers on the basis of their specializations, teaching areas and methods, and research. Since it is to be self-administered, it needs to be as simple and brief as possible, but also capable of indicating a great variety of specializations, courses, and research projects. The basic list of simple categories has been kept to approximately two pages in length, with an additional page for teaching methods and an additional page and a half for research methods. The scheme is analytico-synthetic, so the number of potential categories is infinitely larger than the 117 simple categories provided in the basic list. Before describing CERLIS in greater detail, I would like to briefly describe other available classifications, for the purpose of contrast.

OTHER CLASSIFICATIONS

Library of Congress Classsification

The Library of Congress Classification for libraries and library science (Z662—1000.5),[5] as of 1970, consisted of 330 separately enumerated categories, but 159 of these categories could be further subdivided into any number of subtopics alphabetically using Cutter numbers, "A-Z". It is an entirely enumerative scheme, with no provision for combining existing categories. Traditional compound categories are included; for example: libraries & history & place; cataloging & subject; and cataloging & form of material. On the other hand, cataloging cannot be combined with

type of library or type of user. The general order of categories is: (1) library science in general, including library education and associations; (2) libraries by type; (3) legislation; (4) administration and organization; (5) buildings; (6) personnel; (7) supplies; (8) equipment; (9) collections (materials), by subject; (10) operations (acquisitions, cataloging, indexing, classification); (11) mechanized methods; (12) collection maintenance and security; (13) library regulations; (14) reference work; (15) circulation; (16) libraries, by period and place; (17) library catalogs; and (18) private libraries and book collecting. The arrangement of specific categories within larger classes is generally logical, with some interesting exceptions, such as "library humor, anecdotes, etc." placed between "salaries, pensions, etc." and "finance"; and "endowments, bequests" placed nowhere near "finance" but between "libraries and new literates" and "libraries and publishing". The notation used to represent categories and to preserve their order does not reflect the hierarchy of categories, nor does it reflect the specific elements which form compound categories.

Consequently, it cannot be used for machine searching, except to find the previously made categories. Searches cannot be made mechanically to locate all compound categories dealing with any specific category, such as a place, a time period, a type of library, a type of material, or an operation. The Library of Congress Classification for librarianship was not considered to be an appropriate model for CERLIS because of its enumerative, and therefore, inflexible, design, and also because many topics, especially ones relating to information science, are absent or are in other parts of the full classification.

Dewey Decimal Classification

The 18th edition of the Dewey Decimal Classification[6] provides 235 specifically enumerated topical categories for library and information science (020—029), but because DDC has many analytico-synthetic features, the number of potential categories is almost infinite, certainly in the thousands. But even the specifically enumerated categories are greater in number than in the Library of Congress Classification, since LCC's 330 enumerated categories include 132 place categories, reducing its non-place categories to 198. DDC permits four of its categories to be combined with any other category in the entire classification (from 001 to 999 and their subdivisions), and directs that 15 of its categories be combined directly with the thousands of place categories listed in DDC's table 2 and time categories listed in the history schedule. In addition, all of DDC's 235 enumerated categories can be combined with 126 categories of "standard subdivisions" in table 1, including such categories as application of scientific principles, use of various research methods, application of data processing, law, organizations, education, place and time. In spite of these analytico-synthetic features, however, DDC is still basically enumerative, so that, for example, operations such as reference and cataloging cannot be combined with types of libraries. The general order of categories is: (1) LIS in general, including organizations and education; (2) the library in society; (3) buildings and equipment; (4) personnel; (5) library regulations; (6) operations (administration, acquisitions, cataloging, classification, user services, circulation, and maintenance of materials); (7) libraries by subject; (8) libraries by place, period and type (e.g. public, academic, special); (9) reading; and (10) indexing,

including mechanized storage, search and retrieval. Types of materials are combined with cataloging and administration, and types of persons are combined, in a limited way, with types of libraries. The notation used to represent DDC categories does indicate hierarchical level of category, but specific elements of compound categories are not uniquely identified, so the notation cannot be used to find all instances of a simple subject, such as a single place, operation, type of library, type of material, or type of clientele.

Because of its basically enumerative, precoordinated structure, many simple categories are not listed separately, so that they cannot be freely combined with other categories to create desired compound categories. Also, certain areas, such as information processes, communication and bibliography are listed in other parts of the classification. For these reasons, DDC was not used as a model for CERLIS.

Universal Decimal Classification

The Univeral Decimal Classification is highly analytico-synthetic. Any category can be combined with any other category to create desired compound categories. A draft proposal for UDC schedules for information science, information handling, and documentation, dated 1971 and described by Horsnell, contains some 1100 categories.[7] The general categories and their order are: (1) information science, information handling and documentation in general, including equipment, personnel and organization; (2) activities (recording, collecting, storage and maintenance, retrieval, dissemination); (3) kinds of information; (4) carriers of information (documents); (5) collections; (6) information centers and services; (7) media for dissemination of information; and (8) users. Each category is

provided with unique notation, so that mechanical means could be used to locate every instance of a given simple category, but the notation, based on Dewey's decimal pattern and consisting entirely of numerals and punctuation symbols, tends to be long and cumbersome. Also, this new schedule is separated from a traditional schedule for libraries and librarianship, and since an integrated approach was desired for CERLIS, UDC was not used as a model.

Classification Research Group's Classification

The classification Research Group's Classification of Library and Information Science is by far the most detailed classification currently available.[8] It is fully analytico-synthetic, so that any category may be combined with any other. Since simple categories number in the thousands, the number of potential categories is impossible to estimate. Each simple category has unique and brief notation, so that locating all instances of a given simple category is possible. However, the notation does not express the hierarchical level of categories, so that generic searches are more complicated. The major categories, and their order, are as follows: (1) LIS in general, including intellectual and social contexts, organizations and education; (2) users; (3) systems (types of libraries); (4) materials (documents); (5) agents (buildings, equipment, supplies and personnel); (6) operations (administration, research, data processing, acquisition, storage, circulation, information retrieval and service, and indexing, including cataloging and classification); and (7) related fields (information and knowledge, bibliographic control). When categories are combined, they are added together in the opposite order, so that, for example, in a particular compound category, operations come first, then agents, then materials, then types of libraries, then users, and finally, such categories as organizations and education. This process gathers together all categories

dealing with operations, but subdivides them by agents, materials, types of libraries, users, etc., and is based on the belief that most LIS personnel, most of the time, are most interested in operations. This process also scatters categories dealing with agents, materials, types of libraries, users, etc., but since each category has unique notation, these categories can be re-gathered through mechanical search techniques (or through an alphabetical index).

Because of its relative up-to-dateness, analytico-synthetic structure, comprehensive coverage, and unified treatment of librarianship and information science, the CRG's classification was taken as the model for CERLIS. CERLIS is basically an extreme abridgement of the CRG classification. The order of categories was reversed so that the order of categories and the order for combining simple categories would be the same, and the notation was simplified and made expressive of hierarchy in some cases. A more detailed description of CERLIS and its development and use is given later in this paper.

Libbey-Fry Classification

In the early 1970s, Miles A. Libbey and Bernard M. Fry designed a faceted classification for indexing a "database of research affecting military technical information services."[9] The classification includes "pseudo-facets" for categories taken from two previously existing classifications: (1) a COSATI (Committee for Scientific and Technical Information, an agency of the U.S. government) classification for current research and development in the information sciences; and (2) the classification used in Information Science Abstracts. Additional facets were developed for: (1) mission or purpose of research; (2) organizational context; (3) scientific disciplines (e.g. linguistics, behavioral sciences); (4) technologies

and techniques; (5) library and information science and technology (including types of libraries; relationships within LIS, with other fields, with society, and with other organizations; vocabulary control; classification; cataloging; indexing; "surrogation"; storage and retrieval; and theoretical aspects of information); (6) functions (including acquisitions; cataloging and indexing; circulation; management and administration; storage and shelving; resources/holdings; physical preparation and preservation); (7) services (including loans; reference and referral; current awareness); (8) response modes (such as references; data; full text; information); (9) channels and media (including types and means of communication; documents); (10) education and training; and finally, (11) general modifiers relating to such aspects as document form and research approach. The relationships among some of these facets are not clear; for example, the relationship between cataloging in the "library and information science and technology" facet and cataloging in the "functions" facet, or "loan and issue" in the "services" facet and "circulation" in the "functions" facet. Apparently, the designers of this classification emphasized the provision of multiple access points more than the establishment of mutually exclusive facets. This system is not fully analytico-synthetic, in that only one category from each facet or sub-facet can be combined into a single compound category. However, several compound categories could be created for a single document or project.

The Libbey-Fry classification incorporated classifications used in a COSATI "Directory of Current R&D in the Information Sciences"[10] and in Information Science Abstracts.[11] Both of these are enumerative schemes designed to group entries in these publications, and both place heavy emphasis on information science, with relatively weak coverage of more

traditional areas of librarianship. Information Science Abstracts also supplies an annual alphabetical index in which simple categories can be combined more freely than is possible in its enumerative classification.

Intermediate Lexicon for Information Science

In 1974, Verina Horsnell reported efforts to create an "intermediate lexicon for information science" to serve as a mechanism for combined retrieval from databases which are classified (indexed) according to various classification (or indexing) systems, or for switching from one classification (or indexing) system to another.[12] The lexicon was constructed in the form of an analytico-synthetic classification of some 1000 categories grouped into the following facets: (1) library and information science in general, including context; (2) non-LIS (fringe) disciplines; (3) general terms, activities, operations and administration (as opposed to those inherent to library and information science); (4) artifacts, persons and organizations; (5) information; (6) documentary materials; and (7) technical operations (inherent to LIS), including their products. Specific categories can be modified by role designators, such as "Op" for operation, "Pd" for product, "neg" for the negative of a concept and "Pn" for a person performing a task. For example, "abstracting (Op → Pd)" indicates the product of abstracting, i.e. abstracts; "indexing (Op + Pd)" indicates both operation and product, i.e. indexing and indexes; "users (neg)" indicates non-users; and "abstracting (Op → Pn)" indicates the person performing the operation, i.e. an abstractor. All categories and role designators are assigned an ordinal notation which preserves their order but does not indicate their hierarchical level. As far as I know, the intermediate lexicon has not been published. Although it contains fewer categories, it shares many

features with the Classification Research Group's classification, although the CRG classification does not use role designators. Both of these classifications share a common principal compiler (Ruth Daniel).[13]

Association of American Library Schools Classification

The Association of American Library Schools has used a very brief "classification guide" to characterize its members' specializations in its annual Directory.[14] The guide consists of 26 categories, only three of which may be modified by other categories: (1) library organization and administration by type of library; (2) bibliography by subject; and (3) special literature and materials by type or subject. With these exceptions, the guide is purely enumerative. Simple categories cannot be combined at will, and several of the categories are pre-coordinated into compound categories, the simple elements of which cannot be indicated separately (e.g. materials selection and acquisitions; materials and services for children; adult reading guidance and materials; history of books, printing, and libraries). Dissatisfaction with the limited scope and the inflexible nature of this guide was the principal reason for designing a new classification for education and research in librarianship and information science.

Other Classifications

Several other classifications designed specifically for librarianship and/or information science were examined during the preparation of CERLIS. The oldest was James D. Stewart's Tabulation of Librarianship, published in 1947.[15] It is entirely enumerative. Although several thousand categories are listed, it is badly out of date.

In 1958, Peggy Louise Fahringer prepared "a Classification of Knowledge for the Arrangement of a Library School Pamphlet File."[16] This is a much briefer list of categories than Stewart's, but it is also entirely enumerative.

Although not in final form, Dagobert Soergel's "Personal Classification of Information Science" is a detailed and logical, faceted enumeration of concepts.[17] Its major facets include: (1) information transfer (general concepts and systems); (2) epistemological problems in information transfer; (3) technology; (4) referents of information, types of documents and other retrieval objects; (5) information transfer for specific client groups or fields of application; and (6) research methods. As these classes suggest, the emphasis of this classification is clearly on information science as opposed to more traditional concerns of librarianship. The scheme and its notation are structured according to methods described in Soergel's excellent and comprehensive manual on indexing languages and thesauri.[18]

ALPHABETICAL LISTS AND THESAURI

Library Literature

There are several classifications in which categories are listed alphabetically by the names assigned to them, with related categories indicated by cross references. The most detailed and comprehensive is that used in Library Literature.[19] Both simple and compound categories are enumerated. The most frequently needed combinations of categories are provided, but each combination is generally limited to two categories. For example, cataloging can be coordinated with types of libraries, types of materials, subjects and places, but only one of these additional categories can be added at the same time. Existing categories cannot be combined at will into new categories. Also, since closely related categories are scattered, and cross-references are [continued on next page]

usually limited to categories in contiguous hierarchical levels, generic searches can be difficult. Since the hierarchical framework and facets are hidden in the reference structure of such a classification, it is difficult to take it as a model for a concise classification, which must of necessity be limited to relatively high generic levels.

Schultz' Thesaurus of Information Science and Technology

Claire K. Schultz' Thesaurus of Information Science and Technology[20] is a more appropriate model because its 340 categories tend to be simple and are designed to be combined at will to make compound categories, although the order of combination is not specified. For machine searching, the order of combination is not important, but the order of combination should be uniform for a manually searched array. Otherwise, the same compound category will appear in more than one place. In addition to the alphabetical list of categories with cross references to related categories, a second listing groups the categories into 16 generic areas or facets, such as documents, education, geographic areas, languages, system phenomena, various disciplines, organizations, data processing, and equipment. However, as the title implies, this classification is strongly oriented toward information science, and is quite limited with respect to more traditional areas of librarianship.

Bernier's Thesaurus for Librarianship and Information Science, Services, and Systems

Charles Bernier's "Thesaurus for Librarianship and Information Science, Services, and Systems"[21] has a better balance between librarianship and information science, but no generic or faceted grouping of its 650 relatively simple categories is provided. References to broader categories (reverse

"see also" references) are not always complete, and they are not distinguished from references to narrower categories, making it difficult to group related categories. Since the system is designed for computer retrieval systems, no particular order for combining categories is prescribed.

Aslib's Compressed Term Index Language for Library and Information Science

Aslib's Compressed Term Index Language for Library and Information Science[22] is the alphabetically arranged classification which is most comparable to CERLIS with respect to size and scope. The categories are relatively broad in scope, but at the same time, they consist mainly of simple (as opposed to compound) categories which are intended to be combined into compound categories. Its categories are arranged alphabetically in four separate groups or broad facets: (1) subjects and forms related to LIS; (2) places; (3) proper nouns; and (4) subject fields and disciplines (e.g. mathematics). Only 200 subject and form categories related to LIS are included. These are also grouped into 14 narrower classes or facets, and within each, listed alphabetically. These facets include: (1) form; (2) persons and professions; (3) management (including research and development); (4) equipment (and associated problems/activities); (5) documents and other forms of recorded information (and associated activities/equipment); (6) buildings and furniture (and associated problems/activities); (7) information services (and associated problems/activities/equipment); (8) other library services (and associated problems); (9) libraries, information units and other corporate bodies (and associated problems); and (9) languages, linguistics and nationality. In the main section of the thesaurus, each category is accompanied with a comprehensive listing of related categories. Broader and narrower categories are rarely distinguished as [continued on next page]

such, however. Detailed scope notes are frequent. The final section consists of hundreds of lead-in terms, with references to the relatively few established categories and combinations of these categories.

The ALA Office for Research Classification of Librarianship and Information Science

The Office for Research of the American Library Association has used a classification of librarianship and information science to survey specializations and course offerings in educational programs accredited by the ALA. Neither the classification nor the survey has been published. The classification is a simple enumerative list of 96 specializations. Most categories are arranged alphabetically according to the term assigned to it, although some categories are grouped under broader categories. For example, binding, printing, publishing (historical) and publishing (contemporary) are grouped under book production; "readers' advisory" and "reference" service are grouped under public service; acquisitions, cataloging and classification are grouped under technical services; and types of libraries are grouped under "type of library specialization." There is no provision for freely combining simple categories into compound categories, even though most of the categories are simple. Some pre-coordinated combinations of simple categories are provided, however. "Literature" may be combined with "children" or "young adults", but not with other groups or with subject areas; "service" may be combined with specific groups of persons and "special librarianship" may be combined with subjects or types of materials. There is a strong emphasis on traditional areas of librarianship. Information science is subdivided into only three categories: automation, indexing and abstracting, and mechanized information retrieval, with no general category. This is hardly an up-to-date definition or treatment of information science.

CERLIS

Unlike most of the classifications described above, CERLIS, a "Classification of Education and Research in Librarianship and Information Science" is designed to characterize persons rather than documents. In addition, it is designed to be used for self-classification by the persons to be described, rather than by trained indexers. Consequently, to be successful, it had to be brief, but at the same time flexible and capable of describing a wide variety of specializations, courses and research, and it had to be simple to apply. In order to be brief, only rather broad, generic categories could be included, and to avoid the need for a detailed lead-in vocabulary, with references to the broad categories included, it was decided to arrange categories in facets, rather than alphabetically. In this way, it would be possible to quickly scan appropriate parts of the classification to find the most appropriate broad category for a given purpose.

The basic section of CERLIS consists of 117 categories arranged in 11 facets. Each category may be combined with any other to create more specific, compound categories. The categories "education" and "research" are listed twice, first in the "operations, processes, services" facet and again as isolated categories at the end of the basic schedule. This is to allow "education" to be combined with "education" for "education in education for LIS" and "research" to be combined with "research" for "research on research in LIS." The categories are listed without explanation in table 1. It is presented in the form of a checklist, so that the user need only check the relevant categories. A separate "Guide to CERLIS" is included as Appendix A to this paper. In this guide, definitions, scope notes and cross-references are provided, in addition to instructions for the application of the classification.

Table 1. CERLIS Specialization checklist

[The same categories are also used for course content and the subject of research projects.]

Please use this checklist to describe one (1) of your specializations. Use a separate checklist for each separate specialization. Please refer to the GUIDE TO CERLIS for guidance, including scope notes, definitions, explanations and cross-references for checklist categories.

Descriptive statement of specialization:_____

_____

A. Operations, Processes, Services

___0. All of the following.
___1. Organization, administration, management.
___2. Data processing, automation, computer applications.
___3. Communication, information processes, theoretical aspects.
___4. Publishing, broadcasting.
___5. User services (direct).
___6. Document delivery, circulation, reprography.
___7. Collection development, resource sharing.
___8. Collection maintenance, preservation, processing.
___9. Descriptive cataloging.
___10. Subject cataloging.
___11. Indexing, abstracting, information storage & retrieval.
___12. Critical, analytical, historical bibliography.
___13. Systematic bibliography.
___14. Education (in general)*
___15. Research, theory (in general)*
___99. Other; specify:_____

_____

B. Supplies, Equipment, Technologies, Personnel

___0. All of the following.
___1. Supplies.
___2. Equipment, furniture.
___3. Technologies.
___4. Buildings.
___5. Personnel.
___9. Other agents; specify:____

_____

*See also sections M and N.

C. Resources, Materials

___0. All of the following.
___1. Monographic forms.
___2. Serial forms.
___3. Book forms.
___4. Nonbook forms.
___4.1 Nonbook print forms.
___4.2 Audiovisual forms.
___4.3 Machine-readable forms.
___5. Non-trade materials.
___5.1 Government publications.
___5.2 Dissertations, research reports, patents, etc.
___5.3 Archival materials.
___5.4 Manuscripts.
___6. Materials by language or language group; specify:_____

_____

___7. Reference works.
___8. Materials by subject, discipline, profession.
___8.1 Humanities.
___8.2 Social sciences.
___8.3 "Pure" sciences.
___8.4 Applied sciences, technology.
___8.9 other; specify:_____

_____

___9. Other forms, types of materials; specify:_____

_____

D. Libraries, Information Agencies

___0. All of the following.
___1. Public.
___2. School.
___3. Academic, research.
___4. State, national.
___5. Institutional.
___6. Special.
___7. Indexing, abstracting services, "information industry", information services.

(continued)

Table 1. CERLIS Specialization Checklist, continued

D. Libraries, Information Agencies, continued
___8. Networks, systems, consortia, cooperative efforts.
___9. Other; specify:_____
_____

E. Users, Communities
___0. All of the following.
___1. Children.
___2. Young adults.
___3. Adults.
___4. Older adults.
___5. Ethnic groups, minorities; specify:_____
___6. Groups based on sexual gender or orientation; specify:
_____
___7. Handicapped; specify type:
_____
___8. Persons by subject, discipline, profession, occupation.
___8.1 Humanities.
___8.2 Social sciences.
___8.3 "Pure" sciences.
___8.4 Applied sciences, technology.
___8.9 Other subjects; specify:
_____
___9. Other types of persons; specify:_____

F. Societal Roles, Relationships
___0. All of the following.
___1. Of librarianship, information science in general.
___2. Relationship with publishing, communication media.
___3. Relationship of libraries with parent bodies.
___4. Relationship of libraries with users, communities.
___5. Inter-institutional relationships (e.g. among libraries).
___6. Relationship with government.
___7. Copyright.
___8. Intellectual freedom.
___9. Other roles, relationships; specify:_____

G. General Orientation, Approach
___0. All of the following.
___1. Librarianship.
___2. Information science.

G. General Orientation, Approach, continued
___3. Educational media.
___4. Communications.
___5. Psychology.
___6. Sociology.
___7. Political science.
___8. Economics.
___9. Other; specify:_____

H. Disciplinary, Professional Aspects
___0. All of the following.
___1. Intellectual foundation, theory, definition, standards.
___2. Organizations, institutions.
___3. Qualifications of members.
___9. Other aspects; specify:
_____

J. Geographical, Comparative Aspects
___0. International, comparative aspects.
___1. Urban areas.
___2. Suburban areas.
___3. Rural areas.
___4. USA and Canada.
___5. Europe, Soviet Union.
___6. Latin America, Caribbean.
___7. Africa, Asia.
___8. Australia, New Zealand, Pacific area.
___9. Other areas, types of areas; specify:_____

K. Biographical Emphasis
___Yes.

L. Historical Emphasis, Periods
___0. All of the following.
___1. Ancient, to ca. 500 A.D.
___2. ca. 500-1500.
___3. ca. 1500-1600.
___4. ca. 1600-1700.
___5. ca. 1700-1800.
___6. ca. 1800-1900.
___7. ca. 1900-

M. Education, Training in Particular Operations, Aspects, as checked in sections A thru L.
___Yes.

N. Research, Design, Theory related to Particular Operations, Aspects, as checked in sections A thru M.
___Yes. //

Table 2 consists of additional categories used to obtain information about teaching methods used in courses, and table 3 includes additional categories used to obtain information about research methods. For both courses and research projects, the basic list (table 1) is used for the content or subject of the course or research project.

The notation used in CERLIS indicates the facet plus the specific category within that facet. In a few cases, hierarchical subdivision of a larger category into smaller categories is relected in the notation (e.g. C4 for nonbook forms, C4.2 for audiovisual forms). Every category has unique notation (when both the facet letter and the category number are included), so that the notation can be used for searching for all compound categories having any single simple category. For example, all compound categories relating to public libraries can be found by locating all compound notations including D1.

Development and Testing

The first version of CERLIS was an extreme abridgement of the Classification Research Group's Classification of Library and Information Science. It was presented as a short list of facets, a longer list of facets with subfacets, and a final list of all categories arranged under facets and subfacets. Retroactive notation was used; users were instructed to combine categories in an order opposite that of their arrangement in the schedules. This presentation proved to be too complicated for pre-testers, so that in subsequent versions, the classification was presented in the form of a questionnaire which the user only had to check. Another general criticism of the first version was its rather limited treatment of information science topics.

Table 2. Additional Categories for Teaching Methods

[The categories listed in table 1 are used for the subject content of courses.]

The following categories relate to teaching methods, teaching aids, and methods of evaluating student performance, not to the content of courses.

P. Teaching methods.
Please indicate those methods used regularly.
___0. All of the following.
___1. Lectures.
___2. Class discussion.
___3. Seminar.
___4. Case studies.
___5. Experiential methods.
___5.1 Role playing.
___5.2 Simulation.
___5.3 Sensitivity training.
___6. Programmed instruction.
___7. Computer assisted instruction.
___8. Competency-based instruction.
___9. Keller plan (Personalized system of instruction, PSI).
___10. Practicum, workshop, hands-on experience.
___11. Media production (by students)
___12. Independent study.
___13. Individual projects.
___14. Group projects.
___15. Short papers.
___16. "Term", "research" papers.
___17. Internship.
___18. Field trips.
___19. Guest lecturers.
___99. Other methods; specify:
_____
_____

Q. Teaching Aids.
Please indicate those aids used regularly.
___0. All of the following.
___1. Blackboard.
___2. Computers.
___3. Films, filmstrips.
___4. Slides.
___5. Videorecordings.
___6. Sound recordings.
___7. Transparencies.
___8. Live television (e.g. televising student performance).
___9. Workbooks.
___10. Print handouts, samples, etc.
___11. Charts.
___12. Games; experiential, simulation, sensitivity exercises.
___13. Realia.
___14. Laboratories.
___99. Other aids; specify:_____
_____
_____

R. Evaluation of Students.
Please indicate those methods used regularly.
___0. All of the following.
___1. Objective examinations.
___2. Essay examinations.
___3. Short answer examinations.
___4. Short papers.
___5. "Term", "Research" papers.
___6. Projects.
___7. Oral reports.
___8. Oral examinations.
___9. Simulation exercises.
___10. Practicum or laboratory performance.
___11. Class participation.
___12. Student self-evaluation.
___99. Other methods; specify:
_____
_____

Table 3. Additional Categories for Research Methods

[The categories listed in table 1 are used for the subject of research.]

The following categories relate to the methods used (or to be used) in your research project, not to the subject of research.

S. General Research Methods

Please indicate the general approach used (or to be used) in your research project.

___0. All of the following.
___1. Historical research.
___2. Bibliographical research (study of and/or organization of communication artifacts).
___3. Survey, descriptive research.
___4. Systems theory, systems analysis.
___5. Experimental research.
___6. Operations research.
___7. Logical, philosophical analysis.
___8. Qualitative methods.
___9. Other general approaches; specify:_____

T. Case Selection Methods

Please indicate the method(s) used (or to be used) to select the particular cases on which your research is (or will be) based.

___0. All of the following.
___1. Entire universe of cases included (population study; no selection involved).
___2. Ready-made, accidental sample used.

T. Case Selection Methods, continued

___3. Case study (single or small number of cases chosen subjectively).
___4. Random sample.
___5. Systematic sample (every nth case chosen)
___6. Structured, stratified, or quota sample.
___9. Other method of case selection; specify:_____

U. Data collection Methods

Please indicate sources and/or methods used (or to be used) to collect the data for your research project.

___0. All of the following.
___1. Observation, measurement.
___2. Participation-observation.
___3. Experiment.
___4. Testing (non-written)
___5. Simulation, modeling.
___6. Interviews (formal)
___7. Conversations (informal)
___8. From existing documents (publications, letters, diaries, etc.)
___9. Content analysis (systematic analysis of documentary materials)
___10. Bibliometric techniques, citation analysis.
___11. From existing statistical records.
___12. Questionnaires.
___13. Diaries (kept for research purposes).
___14. Delphi techniques, expert opinion.
___15. Objective tests (written).
___16. Sociometric methods.
___17. Projective and other indirect methods.
___18. Semantic differential.
___19. Q methodology.
___99. Other methods and/or sources; specify:_____

(continued)

Table 3. Additional Categories for Research Methods, continued

V. Analysis Methods

Please indicate any statistical methods used (or to be used) for analyzing data.

___0. All of the following.
___1. Descriptive statistics.
___2. Contingency table analysis (crosstabulation), and related measures of association:
___2.1 Chi-square.
___2.2 Phi.
___2.3 Cramer's V.
___2.4 Contingency coefficient.
___2.5 Lambda.
___2.6 Uncertainty coefficient.
___2.7 Tau b, Tau c.
___2.8 Gamma.
___2.9 Somer's D.
___2.01 Eta.
___2.09 Other; specify:_____
_____
___3. Measures of central tendency; t-test.
___4. Bivariate correlation analysis (Pearson, rank-order).
___5. Partial correlation analysis.
___6. Multiple regression analysis.
___7. Analysis of variance and co-variance.
___8. Discriminant analysis.
___9. Factor analysis.
___10. Canonical correlation analysis.
___11. Scalogram analysis (Guttman scale).
___99. Other methods; specify:
_____
_____

The second version increased the number of categories for information science topics. It was similar to the present third version, except that definitions, scope notes and references were included in the questionnaire itself. Many pretesters commented that the includsion of such information, while important, made it difficult to get an overall view of the classification. Consequently, in the present third version, the schedule itself includes only brief labels for each category, with definitions, scope notes, explanations and references placed in a separate guide. In addition, several new categories were added and definitions and scope notes were clarified, all in response to pretester suggestions.

The first two versions were each pretested by approximately 50 LIS educators selected to represent a wide variety of specializations. Early in April 1978, the third version was sent to a random sample of 100 full-time personnel in library education programs accredited by the American Library Association, as listed in the 1977 edition of the Directory of the Association of American Library Schools. By the end of May, 28 persons had returned completed checklists.* Eleven persons declined to participate: four because they had retired and three because they filled administrative posts and did not feel qualified. Four persons declined for other reasons, including disagreement with the aims or design of the classification. Although 28% (or 39% if all responses are included) is a low response rate, it is not difficult to understand why many persons might lay aside a 41 page packet including three questionnaires relating to specializations, three relating to courses and teaching methods, and three relating to research projects and methods, in addition to a 14 page set of instructions, definitions, scope notes and references. However, the fact that 28 randomly selected educators did respond with relatively few comments or questions indicates

*Two additional sets of questionnaires were received by June 15, 1978.

that CERLIS is usable if respondents are willing to take the time to understand it. I believe the response rate will be higher if users know that the classification will actually be used to describe their specializations, courses or research and to group or give access to them on the basis of these factors.

Responses

Table 4 lists the specializations indicated by the respondents to the current third version of the classification. Table 5 indicates courses taught, including teaching methods used, and table 6 indicates research projects, including research methods. The narrative statements included in tables 4, 5, and 6 are respondents' own descriptions of their specializations, courses and research projects.

Figure 1 consists of profiles of specializations, course content and research subjects as reported by respondents. In the specialization profile, multiple specializations of single individuals are combined, so that the height of the profile indicates the number of persons including a particular category in one of their specializations. In the profiles of courses and research projects, courses taught by single individuals or research projects described by single individuals are not combined, so that the height of the profiles indicates numbers of courses or research projects including a given category, not the number of persons. Profiles of teaching methods and research methods are shown in figures 2 and 3 respectively. In figures 1, 2 and 3, category labels are abbreviated. For full labels, see tables 1, 2 and 3, or the guide in Appendix A.

Figure 4 consists of a hypothetical "analytical index of specializations" which could be used for manually locating persons having given specializations.

Table 4. Specializations as described by respondents using CERLIS

A0A14 B0 C0 D0 E0 F0 G1G2 H0 J0J1J2J3J4J5 L0 M N. "Education for librarianship"* (6)**
A0 B0 D0 F0 G1G2G4G6 H1H2 J0J4 L0. "History of libraries" (24)
A0 B3 C0 D0D8 E0 F0 H0 J1J2J3 L7 M N. "Cooperative reference service" (1)
A1A2A3A4A5A6A11 B1B2B3 D7 E3 G2 H1 M N. "Information retrieval" (27)
A1A2A3A4A7A8A14A15 B0 C4C4.1C4.2C4.3 D1D2D3D8 E0 F1F2F3F4F7 G1G2G3G4 H1 M N. "Instructional technology: AV production and utilization" (26)
A1A2A3A5A6A11 B1B2B3B5B9:industry C1C2C3C4C5.1C5.2C6:French,English D0 E0 F0 G1G2G4 H0 J0 L7 M. "Information retrieval" (20)
A1A2A4A9A10A11 B3 D7D8 E0 F1F2F7 G1G2 H1 M N. "Cataloging" (26)
A1A2A5A6A7A8A11A12A13A14A15 B2B3B4B5 C1C2C3C4.1C4.2C4.3C5.1C5.2C7C8C8.2C8.4 D1D3D4D5D6D7D8 E3 F1F2F3F4F5F7 G2G4 H2 J0J1J4 K L7 M N. "Special libraries" (4)
A1A2A5A6A7A8A14 B1B2B3B4B5B9 C1C2C3C4C4.1C4.2C5C5.1 D2D8 E1E2E7 F3F4F5F6F7F8 G3 H1H2H3 J1J2J3 L7. "School media" (7)
A1A2A5A6A11 B1B2B3B5B9:industry C0C6:French,English D0 E0 F0 G1G2 H0 J0 L7 M. "Library automation and networks" (20)
A1A2 D1D2D3D4D5D6D8. "Library administration" (18)
A1A3A5A6A7A8A12A13A14A15 B0 C0 D1D3D4D5D8 E3E4E5E7:all able to attend collegeC8C8.1C8.2 F1F3F4F5F6 G1G4G6G7G8 H2 J1J2J3J4 L6L7 M N. "Academic administration" (13)
A1A3A5A6A7A8A14A15 D0 E0 F0 G0 H0 J1J2J3J4J5 L0 M N. "Development of libraries and information services" (13)
A1A3A5A6A7A8A15 B0 C1C2C3C4C4.1C4.2C5.2C5.3C7C8C8.1C8.2 D1D3D4D5 E3E4E5:all E7:all F1F2F3F4F5 G1G4G6 J1J2J3J4 L7 M N. "Adult services" (13)
A1A3A5A15 B0 D1D3D4D8 E0 F1F3F4 H2. "Networks" (16) G5G7
A1A3 B3B5 C1C2C3C4C4.1C4.2C5.2C7C8C8.4 D1D2D3D4D6D8 E3E8 F1F3F4F6 G1G3G4/ H0 J1J2J3J4 L0 M N. "Management" (9)
A1A3 B5 C1C2C3C5.2 D0 F1F3F5 G1G6 H2 L7 M N. "Theory of organization and environment" (12)
A1A4A5A7A8A11A15 B4B5 C1C2C3C5.2C5.3C7C8.1C8.2 D1D3D4D5D6D7 E3E8.1E8.2 F1F2F3F6F7F8 G1G4G6G7 H1H2 J1J4J5J6 K L0 M N. "International librarianship" (4)
A1A4A5A12A13A14A15 B3 C1C2C3C4C4.1C4.2C5C5.1C7 D1D2D6 E1E2E5E6:sexism in children's literature E7:retarded, deaf,etc. F1F2F4F8 G1G3G4G5G6 H1 J1J2J3J4 K L0 M N. "Children's literature" (26)
A1A5A7A8 B5 C1C2C4.1C5C5.1C5.2C5.3C5.4C7C8 D3D6 E8 F2F3F4 G1G4 H0 J4. "Special librarianship" (2)
A1A5A15 B3B4B5 D0D8 F1F3F4F5F6 G7 J1J2J3 L7 N. "Administration" (16)
A1A14 D1D3D4D8 E8.2 F1F3F4F5F6 G1G6 J0J4J5 L7 M. "Comparative librarianship" (14)
A1A15 G1G2G6 L7 N. "Research methods" (14)
A1 B0 C1C2C3C4C4.1C4.2C5C5.1 D2 E1E2 F3F4F5F6F7F8 G0 H0 J4. "School media centers" (18)

(continued)

*Quoted phrases were used by respondents to describe their specializations. **Numbers in parentheses refer to individual respondents.

Table 4. Specializations as described by respondents using CERLIS, continued

A1 B5 D0 F3F4F5F6 G1 H3 M. "Organization and administration of libraries" (19)
A2A3A4 B0 C0 D0 E0 F1F2 G1G3G4 H1 J1J2J3J4J5 L0 M N. "Visual media" (6)
A2A3A15 G5G9:mathematics,philosophy H1 N. "Methodology, including statistics and decision theory" (11)
A2A10A11 C0. "Indexing" (3)
A3 B3 C4.2 D2D3 E0 G2G3G4G5 J0 M N. "Educational media and technology" (5)
A3A4A8A15 C1C2C3C4C4.1C4.2C5.1C5.2C7C8 D1D2D3D4D6 E1E2E3E4E5:Blacks,native Americans,JewsE6:women F1F2F3F4F8F9:with self G1G4G5G6G7 H0 J1J2J3J4 L6L7 N. "Intellectual freedom & censorship" (9)
A3A5A15 E0 F1F4F5 G1G4G5 N. "Communications; human behavior" (10)
A3A15 F1 G2G4G5G6G9:philosophy H1 N. "Information, theoretical aspects of" (11)
A4A11 B2B5 C1C3C4.2C5.2C5.3C5.4C8.1C8.2 D1D3D5D6 E3E8.1E8.2 F1F2F3F7F8 G1G6G7 H1 J0J4J9:areas of spread of printing L0 M N. "History of books and printing" (4)
A5A6 C1C2C3C4C4.1C4.2C4.3C5C5.1C5.2C7C8.1 D0. "Reference and information service" (8)
A5A13 C7C8C8.1 E8E8.1 F4 H2. "Bibliography of humanities" (25)
A5 F2F7F8. "Publishing" (25) (Could add A4, "publishing")
A6A7A8 D8. "Technical services, with emphasis on collection development and maintenance" (25)
A7A12A13 C0C8.1 D0 E0 F2F3F4F7F8 G1G2 J1J2J3. "Selection and acquisition" (21)
A7A13 C1C2C3C8.1 D0 E3E8.1 G1 H1H2 J4J5 L7. "Humanities--American theatre" (21)
A9 B3B5 C0 D1D3D8 E0 F4 G1G2 H1H2H3 J0J4 L7 N. "[omitted]" (28)
A10A11 B3B5 C1C2C3C4C5C5.1C8.2 D7D8 E0 G1G2 H1H2H3 J0J4J5J7 L7 N. "[omitted]" (28)
A11A15 B3 F9:computers and society G2G5. "Research" (27)
A11 B1B2B3 C1C2 D7 E3 G2 H1 M N. "Abstracting and indexing" (27)
A13 F9:legal deposit G1 J4J5 L3L4L5L6L7. "Universal and national bibliographic control" (15)
A14 B5 G1 J0. "Education for librarianship" (19)
A14 G1 H1 M. "Library education" (18)
A15. "Research methodology" (16)

C1C2C3C4C4.1C4.2C4.3C5C5.1C5.2C5.3C7C8 D1D2D3 E1E2E5:Hispanics,Blacks F4 G3G5G6 H1 J0 L5L6L7. "Children and young adult literature" (23)
C1C2C3C5C5.2C6:Latin alphabet F2F5F6 G1 L3L4L5L6L7. "Society, academic discipline, technology, reference sources" (15)

C7C8.1 G1. "Reference sources" (15)

J0. "International, comparative librarianship" (17)
J6. "Latin American Studies bibliography" (17) (Could add A13, "systematic bibliography"; C7, "reference works"; C8.2, "materials on social sciences".)

Table 5. Course content and teaching methods as described by respondents using CERLIS

Course content	Teaching methods
A0 B0 C0 D6 E3 F0 H0 J4 L6L7. "Special libraries"* (1)**	P1P2P3P4P12P15P16P18P19 Q1Q2Q10 R2R3R4R5R7
A0 B0 C1C2C3C4C4.1C4.2C4.3C5C5.1C5.2C5.3C7 D3 E3E7:all able to attend college F1F3F4F5 G1G2G4G6G7G8 H2H3 J1J2J3J4 L6L7 M N. "The academic library" (13)	P1P2P3P4P12P13P15P16 Q1Q10 R2R4R5R6R7R11
A1A2A3A4A5A6A11 B1B2B3 D7 F1F2 G2 H1 M N. "Database retrieval systems" (27)	P1P2P3P5.1P10P16 Q1Q2Q9Q10 R5R6R7R11
A1A2A3A4A5A6A11 B3B5 C0 D0 E0 F1F2F5F6F7F8 G2 H1H2 L7. "Introduction to information systems" (3)	P1P2P10P15P16P18P19 Q1Q2Q3Q7Q9Q10Q14 R2R3R4R5R7R10R11
A1A2A3A4A8A9A10A11 B3 C1C2C3C4C4.1C4.2C4.3C5 D1D2D3D4D6 E0 F2F3F6 G1G2G3 H1H2 J0 L7 M. "Acquisitions and organization of materials" (26)	P1P2P8P10P13P99:worksheets,books to catalog Q1Q2Q4Q5Q7Q10 R1R2R3R6R7R11
A1A2A3A5A6A7A8A10A11A14 B0 C1C2C3C4.2C4.3C5.1C5.2C7C8.2C8.4 D1D3D4D5D6D7D8 E3E8.2E8.4 F1F2F3F4F5F6F7 G2G4G6G7G8 H2H3 J4 K L7 M N. "Special libraries" (4)	P1P2P4P13P15P16P18 Q1Q2Q3Q4Q7Q10 R1R3R4R5R7R11R12
A1A2A3A6 B3B5 G1G2 H1 M N. "Library systems analysis" (26)	P1P2P5P6P8P15 Q1Q2Q7Q10Q11 R1R2R3R6R11
A1A2A3A7A8A12A13 C0C7C8C8.1C8.2C8.3C8.4 D0 E0 F0 G0 H0 J0 L0. "Introduction to librarianship" (23)	P1P2P8P15P19 Q1Q10Q11Q13 R1R3R4R5R7
A1A2A3A7A8A15 B4B5 D1D2D3D4D5 F3F5F6 H1H2H3. "Seminar in library administration" (18)	P3P16 R5R7R11
A1A2A3A15 B0 C0 D0 E0 F0F9:departmental relationships,intra-library relationships(i.e.tech. serv. & other depts. G1G2 H1H2 J4 L7 M N. "Management and technical services" (24)	P1P2P4P5.1P5.2P12P13P14P16P18P19 Q1Q3Q7Q10 R5R6R7R11
A1A2A4A5A6A8A9A10 B1B2B3B9:centralized services C1C2C3C4 D1D2D3D6D8 E1E2E3E5:BlacksE6:womenE7 F2F3F4F5F9:intra-library relationships,e.g. tech. serv. & public serv.,administration G1 H1H2 J4 L6L7 N. "Technical services, survey" (24)	P1P2P99:reading assignment Q1Q7Q10Q12Q99: slide-tape presentation R1R2R11
A1A2A4A11 B1B2B3B5 C0 D7D8 E0 G2 H2H3. "Abstracting and indexing" (3)	P1P2P13P14P18P19 Q1Q2Q7Q10 R4R6R7
A1A2A5A9A10 B3B5B9:centralized services C1C2C3C4.1C4.2C9: realia,models D1D2D3D6D8 E1E2E3E5:Blacks, AmerindiansE6:women,men F4F5 G1 H1H2 J0J4 L7 N. "Cataloging & classification" (24)	P1P2P7P10P13P14 Q2Q5Q7Q10Q12Q13 R1R6R7R10R11

(continued)

*Quoted phrases were used by respondents to describe their courses. **Numbers in parentheses refer to individual respondents.

Table 5. Course content and teaching methods as described by respondents using CERLIS, continued

Course content	Teaching methods
A1A2A6A11 B1B2B3B5 C0 D1D3D4D5D6D7D8 E3E8E8.1E8.2E8.3E8.4 G2. "Databases" (3)	P1P2P5.1P10P16P18P19 Q1Q2Q3Q7Q9Q10 R5R7R9R10R11
A1A2 B1B4B5 C1C2C3C4.2C4.3 D0 F3F4 G1G5G6G9:business, budgeting,MBO,etc. H2 L7. "Library organization & administration" (12)	P1P2P4P5.1P6P7P16P19P99:article review of business periodicals Q1Q2Q3Q11 R1R2R5R11
A1A3A4A5A6A7A8 B2B4B5 C1C2C3C4C4.1C4.2C4.3C5.1C5.3C6:general C7 D1D4D5 E3E4E5E7 F1F3F4F5F6 G1G7G8 H2 J1J2J3J4 L7 M N. "Library services to adults" (13)	P1P2P3P12P13P14P15P16P18P19 Q1Q10 R2R4R5R6R7R11
A1A3A4A5A11 B2B4B5 C1C3C4.2C5.2C5.3C5.4C6C7C8C8.1C8.2 D1D3D4D5 D6D7D9:rare book collections E3E8.1E8.2 F1F2F7F8 G1G3G6G7 H1H2 J4J5J6 K L0 M N. "History of books and printing" (4)	P1P2P12P13P15P16P18P19 Q1Q3Q4Q7 R1R2R4R5R7R11R12
A1A3A4A7A11A15 B4B5 C1C2C3C5.2C5.3C6C7C8.1C8.2 D1D3D4D5D6D7 E3D8.1E8.2 F1F2F3F7F8 G1G4G6G7 H1H2H3 J1J4J5J6 L0. "International libraries" (4)	[omitted]
A1A3A5A6A7A8A11 B1B2B3 C1C2C3 D6 E9:special library clientele F1F3F4F5 G1 H3 L7. "Special library"	P1P2P13P16P18P19 Q1Q10 R2R5R7
A1A3A5A6A7A8A14A15 B3B5 C1C2C3C4C4.1C4.2C4.3C5C5.1C5.2C7 D0 E0 F0 G1G2G3G6G7 H0 J1J2J3J4J5 L5L6L7 M N. "Development of libraries & information services" (13)	P1P2P12P13P14P15P16P19 Q1Q3Q10 R2R4R5R6R11
A1A3A5A15 B0 D1D3D4 E0 F1F3F4 H2. "Networking" (16) [could include D8, networks]	P1P2P4P12P13P16P19 Q1Q10Q11 R2R5R11
A1A3 B5 D1D3 F3F4F5F6 L7. "Administration" (14)	P1P2P4P15P16 Q1Q3Q10 R5R7R11
A1A3 C1C3C8 D1D2D3 E3E9:librarians F3F4F5F6 G1G4G5G7 H1H2H3 J1J2J3J4 L7. "The experience of management" (9)	P1P2P4P5.1P99:written case analysis Q1 R11R99:cases
A1A3 C2C3C4C8C8.9:business lit. E3F9:people G9:management theory H1J4 L7 M N. "Contemporary management theory" (9)	P1P2P4P5P5.1P5.2P5.3P12P13P14P16 Q1Q3Q4Q7 Q10Q12 R5R6R7R9R11R12
A1A5A7A8 B5 D3D4D6D8 E8 F3F4F5 G1G4 H2H3 J4. "Special libraries" (2)	P1P2P5P5.1P5.2P6P12P13P14P15 Q1Q10Q12 R1R3R4R7R9R11
A1A5A7A14A15 B5 D0 E1E2E3E4E5E6E7 F0 G1G2 H0 J1J2J3J4. "Survey of librarianship" (19)	P1P2P16P19P99:group & individual reports Q1Q3Q6Q7Q10 R2R5R7R11
A1A5 B0 D1D3D4D8 F1F2F3F4F5F6 G0 J1J2J3 L7 N. "Library administration" (16)	P1P2P3P4P5P5.1P5.2P5.3P6P8P10P12P13P14P15 P16P18P19 Q1Q3Q4Q5Q6Q8Q10 Q11Q12 R1R2R4R5R7R11
A1A5 B2B4B5 D1 E1E2E3E4E5:Amerind.,Hispanic,BlackE7:physical E9:prisoners F1F4 G1 J1J2J3. "Public libraries & community information centers" (22)	P1P2P4P16P18P19 Q3 R2R5R7R11

(continued)

Table 5. Course content and teaching methods as described by respondents using CERLIS, continued

Course content	Teaching methods
A2A3A4A5A7A8 B3 C0 D0 E0 F0 G0 H0 J0 M. "Advanced reference" (1)	P1P2P5.1P5.2P10P13P15P19 Q1Q5Q9Q10 R1R2R3R4R10
A2A3A5A7A12A13 B3 C0 D0 E0 F1F4F5 G1G2G3G4 H1 J0 L7. "Refer- materials & services" (26)	P1P2P4P5.1P5.2P8P13P14P15P19 Q1Q2Q5Q7Q10Q12 R1R2R3R4R7R9R11
A2A3A11 B3 D4.3 D7 E3E8.3E8.4 F1F4 G2G4 H1 N. "Introduction to information science"	P1P2 Q1Q2Q3Q4Q7Q11Q13 R1R2R11
A3A5A14A15 D0 E0 F0 G1G2G4 H0 J4J5 L0. "Introduction to library and information science" (21)	P1P2P13P15P17P19 Q1Q4Q10 R1R2R4R7R11
A3A5A15 C1C2C3C4.2C5.2C8.2 E0E8.2 F1F4F5 G1G4G5 N. "Counseling and advisory services" (10)	P1P2P3P4P5P5.1P5.2P5.3P12P13P14P15P16P17 Q1Q5Q8Q12 R4R5R6
A3 B3 C4.2 D1D2D3 E0 G2G3G4G5 J0 M N. "TV programming" (5)	P1P2P5.1P5.2P11P14 Q1Q5Q7Q8 R1R10R11
A3 B3 C4.2 D1D2D3 E0 G2G3G4G5 M N. "AV materials, methods, services" (5)	P1P2P4P5.1P5.2P6P7P10P11P12P13 Q0 R1R6R10R11
A3 B3 C4.2 D2 E1E2 G2G3G4G5 J0 M N. "Media & the curriculum" (5)	P1P2P5.1P5.2P13P16 Q1Q2Q3Q4Q5Q6Q7Q10Q12 R5R6R11
A3 C1C3C4C4.2C7C8 D1D2D3D6 E1E2E3 F3F4F8 G1G3G4G5G6G7 H1 J1J2J3J4 L7. "Intellectual freedom & censorship" (9)	P1P2P4P5.1P5.2 Q3Q4Q6 R5R7R11R99:written cases
A4A5 E3E4E7 F2F4. "Reading interests of adults" (25)	P1P2P4P12P13P15P16P19 Q1Q7Q10Q11 R1R2R3R4R5R6R7R11
A4A7A8A12A13 C0C6:English,French,GermanE8.1E8.2E8.3E8.4 D0 E1E2E3E4E5 F1F2F3F4F5F6F7F8 G1 H1H2 J1J2J3J4. "Selection & acquisition" (21)	P1P2P13P16P18P19 Q1Q10Q99:textbooks & collaterial readings R1R2R5R7R11
A4A7 C0 D0 E0 F0. "Building library collections" (25)	P1P2P4P5P12P13P14P15P18P19 Q1Q3Q4Q6Q7Q10 R1R2R3R6R7R11
A5A7A8 C0 D0 E0. "Resources in the humanities" (8) [could add C8.1, materials on the humanities]	P0 Q0 R0
A5 C0C6:English,German,FrenchC8.1 D0 E3 F4 G1 H1 K L0. "Information sources: humanities" (21)	P1P2P5.1P13P16P18P19 Q1Q10 R1R2R5R7R11
A5 C7C8.1. "Humanities" (15)	P1P2P5P10P12P13P15P16P18P19 Q1Q7Q10Q13Q14 Q99:opaque projector R4R5R6R7
A5 C7 G1. "Information sources" (15)	P1P2P5P10P12P13P15P16P18P19 Q1Q7Q10Q13Q14 Q99:opaque projector R1R4R5R6R7R8R10
A7A12A14 C1C2C3C4.1C5C5.1C5.2C5.3C5.4C7 D1D2 E1E2E5:Hispanic, Blacks,Asians F4F8 JoJ1J2J3J4J5J6J7J8 L5L6L7. "Children's & Young adult lit." (23)	P1P2P8P10P15 Q1Q5Q6Q10 R4R5R7R11

(continued)

Table 5. Course content and teaching methods as described by respondents using CERLIS, continued

Course content	Teaching methods
A7A14 C1C2C3C4C4.1C4.2C5C5.1C7 D1D2 E1E2E7 F8 G1G3 H1. "Library materials for young adults" (7)	P1P2P3P8P10P12P15P16 Q1Q3Q4Q5Q6Q7Q8Q10 R2R3R4R5R6R7R11
A7A14 C1C2C3C4C4.1C4.2C7 D1D2 E1E2E7 F8 G1G3 H1 L7 M. "Library materials for children" (7)	P1P2P13P15P16 Q1Q3Q4Q5Q6Q7Q8Q10 R1R2R3R4R5R6R7R11
A7 C3C4.2C7 D1D2 E1E5:Black,Hispanic,Amerind.E9:non-motivated F1 G1 J1J2J3. "Contemporary children's lit." (22)	P1P2P15P19 Q3Q10 R2R4R11
A9 B3B5 C0 D1D3D8 E0 F4 G1G2 H1H2H3 J0J4 L7 N. "[omitted]" (28)	P1P2P3P10P15P18P19 Q1Q2Q7Q10 R4R11
A10A11 B3B5 C1C2C3C4C5C5.1C8.2 D7D8 E0 G1G2 H1H2H3 J0J4J5J7 L7 N. "[omitted]" (28)	P1P2P3P10P15P19 Q1Q2Q7Q10 R4R11
A11 C1C2 D7 F1F2 G2 M N. "Fundamentals of abstracting & indexing" (27)	P1P2P10P19 Q1Q10Q14 R5R6R10R11
A13 G1 J4J5 L3L4L5L6L7. "National bibliography" (15)	P1P2P3P10P13P14P16P19 Q1Q7Q99:opaque projector R5R7
A14A15 B0 C0 D0 E0 F1 G1G2 H0 J4J5J6J7J8 L6L7 M N. "Seminar on the social activities of libraries" (6)	P3P13P14P15P16P19 Q1Q10 R1R2R3R4R5R6R7R11
A14 C1C2C3C4C4.1C4.2C5C5.1C5.2C7C8.1C8.2C8.3C8.4 D1D2 E1E2E5:Hispanic,Blacks,Asians G3G5G6 H1 J1J2J3J4 L7. "Reading guidance techniques for children & young people" (23)	P1P2P3P8P11P12P15 Q1Q3Q4Q6Q7Q10Q13 R4R5R6R7R10R11
A14 M. "Seminar in library education." (18)	P2P3P16 R5R7R11
A15 B3 F1 M N. "Research methodology" (27)	P1P2P3P13 Q1 R5R7R11
A15 E6:women G5G6G7 L7 N. "Research methods--survey research sections" (14)	P1P2P4P13P15P19 Q1 R4R11
A15 G1G2 H1. "[omitted]" (28)	P1P2P3P15P19 Q1Q2Q7Q12 R4R11
A15. "Research methods" (16)	P1P2P4P5P7P8P13 Q1Q3Q4Q9Q10 R2R6R11
A15. "Research methods in librarianship" (25)	P1P2P4P13P15P16P18P19 Q1Q7Q10Q11 R1R2R3R4R5R6R7R11
C0C7C8.2 L7. "Social sciences literature" (14)	P1P2P16P18P19 Q1Q2Q3Q10 R1R5R7R11
C1C2C3C4.1C5.1C7 D0 E0. "Beginning reference" (1)	P1P2P7P10P13P15 Q1Q2Q7Q9Q10 R1R2R3R4R10
C3C4.2 D1D2. "Story telling" (22) [A5, user services, & E1, children, could be added]	P1P2P5.1P15P19 Q1Q3Q5Q6Q8 R4R8R11
C8.1. "Reference materials and services in humanities" (17) [A5, user services, could be added]	[omitted]
C8.2. "Reference materials and sources in social sciences" (17)	[omitted]
C8.3C8.4. "Reference materials and sources in science and technology" (17)	[omitted]

Table 6. Research subject and research methods as described by respondents using CERLIS

Research subject	Research methods
A1 B0 D1 F3F4F5F6 G1G7G8 J1J2J3. "Patterns of expenditures in public libraries" (16)	S3S6S8 T1 U6U7U8U11 V1V3
A1 C1C2C3C4.3C5.2 D3 F3 G1G6 H2. "Centralization of decision-making & environmental uncertainty in large academic libraries" (12)	S1S3 T9:ten highest & ten lowest on variable U12 V1V2.1V2.09: Spearman correlation coefficient--rank order
A1A7 D0 E1E2E3 F3F5F6 G1G2G6G7 J0J5 L7. "Contemporary Italian libraries" (14)	S1S3S8 T1T2T9:purposive sample U1U6U7U8U11U12 V1
A2 C4.3. "Database searching"	S2S5 U3U4U8U9 V1V2V7
A3A4A6A15 B3 C3 D1 E3 F1F2 G1 H1 J1J2J3 L7. "Effect on public library circulation of advertising via cable TV (dissertation)" (6)	S5 T2T4T5 U3U11U12 V1V2V2.1V2.8V4V5V7
A3A11 C9:tokens,primitive messages D7 E3 F4 G5 H1. "Information seeking behavior (with meta information and information source preferences and cost)" (11)	S5 T9:cluster sample:college sophomores U1U3 V1V7V99:simple MANOVA with repeated measures (actually)
A3A15 E3 G2G4G5G9:philosophy H1. "Nature of information man: reductive and hermeneutical bases for information science" (11)	S4S7 U8
A3 B3 C0 D0 E0 G2G3G4G5 J0 M N. "Effects of technology assessment on judgements of innovations" (5)	S5 T2 U5U12U18 V1V4V7V9
A3 B3 C4.2 D2 E0 G3G5 J4 M N. "Instructional material selection criteria preferences of ed. media specialists" (5)	S3 T2 U12 V1V7
A3 C1C2C3C5.2C5.4C8.2 D1D8 F1F5 G1G2G3G4G5G6 J1J2J3J4. "Librarians' attitudes toward technology" (10)	S3 T5T6 U6U12U14U18 V2.09:not yet determined
A3 D0 E0 G2G3G4G5 M N. "Decisions indigenous to diverse evaluation models" (5)	S2S7S8 U99:literature review & analysis
A5 C1 D1 E2E3. "SDI in public libraries" (25)	S3 T2 U12 V1
A8 C1C8.1 D3. "Physical condition of monographs in lang. & lit. section of univ. library" (25)	S3 T5 U1 V1V2V2.1V3V6
A10A11 G1G2G9:linguistics H1 K. "History of faceting with emphasis on linguistic theory, philosophical analysis, and particular schools & people" (28)	S1S7 T3 U9
A10A11. "How to tell what factors are conducive to indexing consistency" (28)	S3S7 T4 U3U14 V1V7

(continued)

Table 6. Research subject and research methods as described by respondents using CERLIS, continued

Research subject	Research methods
A10A12A13A14A15 C1C2C3C4C4.1C4.2C4.3C5C5.1C5.2C5.3C5.4C6C7C8.1 E1E2 G3G4G5G6G7G8 L0. "Imaginative literature for children and young adults" (23)	S1S2S7 U9U10
A11 C2C3C8.2C8.4 G2. "Terminology change--effect on index vocabularies" (3)	S2S7 T6 U1U9 V1
A14 D0 E8.9:librarianship G1G2 J9:three R's regions in NY. "Market studies for continuing education" (16)	S3 T1 U12 V1
A14. "Admission characteristics of library school students" (25)	S3 T6 U1U11 V1V2V2.1V3V4V5
A99:budgets D1 G6G8 J4 L7. "Public library finance" (14) [budgeting is included in A1]	T1 U11 V1V2V3
B2 C2C3 D3 E9:college students F4 G1. "Effect of a microfiche catalog on library circulation" (12) [could add A6, circulation]	S3 T5 U1U6U11 V1
B5 D0. "Women in management" (16) [A1, management, could be added]	S1 T5 U9
C0 D0 E0 F0 G0 H0. "Trade associations as information sources" (1)	S2S3S5 U12
C0 D0 H2. "Literature of librarianship" (1)	S2 U8
C2C3C7C8.1 K L7. "Resources in American drama."	T1T3 U6U8U9 V1V2.1V2.3V4
D3 G1 H3 J4 K L7 M N. "Directors of ARL libraries, 1933-1973" (13)	S1S3S8 T1 U8U9U12 V1
E3E7:students & faculty in Latin American studies[sic]E8.2 G7G8 J6 L7. "The guerrilla movement in Latin America since 1950: an international bibliography" (17) [could add A13, systematic bibliography; C8.2, materials on the social sciences]	S2

Figure 1. Profiles of specializations, courses and research

	Research projects (each 'x' represents one project)	Courses (each 'x' represents one course)	Specializations (each 'x' represents one person)
A. Operations, etc.			
A0. All categories	xxx	xx	xx
A1. Administration, etc.	x	xxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxx
A2. Data processing, etc.	xxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxx
A3. Communication, etc.	x	xxxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxx
A4. Publishing, etc.	x	xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxx
A5. User services	x	xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxx
A6. Doc. delivery, etc.	x	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxx
A7. Collection devel., etc.	x	xxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxx
A8. Preservation, etc.	x	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxx
A9. Descriptive cat.		xxxx	xx
A10. Subject cat.	xxx	xxxxx	xxx
A11. Indexing, etc.	xxxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxx
A12. Crit., hist. bibliog.	x	xxxx	xxxx
A13. Systematic bibliog.	x	xxxx	xxxxx
A14. Education (general)	xxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxx
A15. Research (general)	xxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxx
A99. Other	x		
B. Equip., personnel, etc.			
B0. All categories	x	xxxxxx	xxxxx
B1. Supplies.		xxxxx	xxx
B2. Equipment, furniture	x	xxxxxxx	xxxx
B3. Technologies	xxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxx
B4. Buildings		xxxxxx	xxx
B5. Personnel	x	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxx
B9. Other		xx	xx
C. Resources, materials			
C0. All categories	xxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxx
C1. Monographic	xxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxx
C2. Serial	xxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxx
C3. Book	xxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxx
C4. Nonbook	x	xxxxxxxxxx	xxxxxxx
C4.1 Nonbook print	x	xxxxxxxxxx	xxxxxxx
C4.2 Audiovisual	xx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxx
C4.3 machine-readable	xxx	xxxxxx	xxxx

(continued)

Figure 1. Profiles of specializations, courses, research, cont.

	Research projects (each 'x' represents one project)	Courses (each 'x' represents one course)	Specializations (each 'x' represents one person)
C. Resources, continued			
C5. Non-trade	x	xxxxxxx	xxxxxxx
C5.1 Govt. publications	x	xxxxxxxx	xxxxxxxxx
C5.2 Diss., research repts.	xxx	xxxxxxx	xxxxxxxx
C5.3 Archival materials	x	xxxx	xxxx
C5.4 Manuscripts	xx	xx	xx
C6. By language	x	xxxx	xx
C7. Reference works	xx	xxxxxxxxxxxxxxxxx	xxxxxxxxx
C8. By subject, etc.		xxxxx	xxxxx
C8.1 Humanities	xxx	xxxxxxxx	xxxxx
C8.2 Social sciences	xx	xxxxxxxxxx	xxx
C8.3 "Pure" sciences		xxxx	
C8.4 Applied sci., tech.	x	xxxxx	xx
C8.9 Other		x	
C9. Other materials	x	x	
D. Library agencies, etc.			
D0. All categories	xxxxxx	xxxxxxxxxxxxxx	xxxxxxxxx
D1. Public	xxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxx
D2. School	x	xxxxxxxxxxxxxx	xxxxx
D3. Academic, research	xxxx	xxxxxxxxxxxxxxxx	xxxxx
D4. State, national		xxxxxxxxx	xxxxx
D5. Institutional		xxxx	xxx
D6. Special		xxxxxxxxxxx	xxxx
D7. Indexing agencies, etc.	x	xxxxxxxx	xxx
D8. Networks, etc.	x	xxxxxxxx	xxxxxxxxx
D9. Other		x	
E. Users, communities			
E0. All categories	xxxx	xxxxxxxxxxxxxxxx	xxxxxxxxx
E1. Children	xx	xxxxxxxxxxx	xxxxx
E2. Young adults	xxx	xxxxxxxxxx	xxxxx
E3. Adults	xxxxxx	xxxxxxxxxxxxxxxx	xxxxx
E4. Older adults		xxxxx	xx
E5. Ethnic, minority		xxxxxxxx	xxxx
E6. By sex, orientation		xxxx	xx
E7. Handicapped	x	xxxxxxx	xxx

(continued)

Figure 1, cont.

	Research projects (each 'x' represents one project)	Courses (each 'x' represents one course)	Specializations (each 'x' represents one person)
E. Users, continued			
E8. Users, by subject, etc.			
E8.1 Humanities	x	xx	xxxx
E8.2 Social sciences		xxx	xxxx
E8.3 "Pure" sciences		xxxxx	xxx
E8.4 Applied sci, tech.		xx	
E8.9 Other subjects	x	xxx	
E9. Other persons	x	xxxx	
F. Societal roles, etc.			
F0. All categories	x	xxxxxxx	xxxx
F1. Of LIS in general	xx	xxxxxxxxxxxxxxxxx	xxxxxxxxx
F2. With publishing media	x	xxxxxxxxxxxx	xxxxxxxxx
F3. With parent bodies	xxx	xxxxxxxxxxxxxxxxxxx	xxxxxxxxxxx
F4. With users, etc.	xxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxxxxx
F5. Among libraries	xxx	xxxxxxxxxxxxxxx	xxxxxxxxx
F6. With government	xx	xxxxxxxxx	xxxxxx
F7. Copyright		xxxxx	xxxxxx
F8. Intellect. freedom		xxxxxxxx	xxxxxx
F9. Other		xxx	xxxxx
G. Orientation, etc.			
G0. All categories	x	xxx	xx
G1. Librarianship	xxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxx
G2. Information science	xxxxxxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxx
G3. Educational media	xxxxx	xxxxxxxxxxxxx	xxxxxx
G4. Communications.	xxxxx	xxxxxxxxxxxxxx	xxxxxxxxxxx
G5. Psychology.	xxxxxx	xxxxxxxxx	xxxxxxx
G6. Sociology.	xxxx	xxxxxxxxx	xxxxxxxxx
G7. Political science	xxxx	xxxxxxxxx	xxxxxxxxx
G8. Economics	xxxx	xxx	xxxx
G9. Other	xx	xx	x
			x
H. Disc., prof. aspects			
H1. All categories	x	xxxxxx	xxxxxxxxx
H2. Intellect. foundation	xxxx	xxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxxxxx
H3. Organizations, etc.	xx	xxxxxxxxxxxxxxxxxxxxx	xxxxxxx
H4. Qualifications	x	xxxxxxxxx	
H9. Other aspects			

(continued)

Figure 1. Profiles of specializations, courses, research, cont.

Figure 2. Profile of teaching methods (each 'x' represents one course)

P. Teaching methods	
P0. All categories	x
P1. Lectures	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
P2. Class discussion	xxxxxxxxxxxxxxxxxxxx

Figure 2. Profile of teaching methods, continued
(each 'x' represents one course)

Q. Teaching aids, continued	
Q12. Games, simulation exercises	xxxxxxxxx
Q13. Realia	xxxxxx
Q14. Laboratories	xxxx
Q99. Other aids	xxxxx
R. Evaluation of students	
R0. All categories	x
R1. Objective examinations	xxxxxxxxxxxxxxxxxxxxxxxxxxxx
R2. Essay examinations	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
R3. Short answer examinations	xxxxxxxxxxxxxxxx
R4. Short papers	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
R5. "Term", "research" papers	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
R6. Projects	xxxxxxxxxxxxxxxxxxxxxxxx
R7. Oral reports	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
R8. Oral examinations	xx
R9. Simulation exercises	xxxx
R10. Practicum performance	xxxxxxxxxx
R11. Class participation	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
R12. Student self-evaluation	xxx
R99. Other methods	xx

Figure 3. Profile of research methods (each 'x' represents one research project)

S. General research methods	
S0. All categories	
S1. Historical research	xxxxxxx
S2. Bibliographical research	xxxxxxx
S3. Survey research	xxxxxxxxxxxxx
S4. Systems theory & analysis	x
S5. Experimental research	xxxxx
S6. Operations research	x
S7. Logical, philosophical analysis	xxxxxx
S8. Qualitative methods	xxxx
S9. Other methods	
T. Case selection methods	
T0. All categories	
T1. All cases studied	xxxxx
T2. Accidental sample	xxxxx
T3. Case study	x
T4. Random sample	xx
T5. Systematic sample	xxxxx
T6. Structured sample	xxx
T9. Other	xxx
U. Data collection methods, sources	
U0. All categories	
U1. Observation, measurement	xxxxxx
U2. Participation-observation	
U3. Experiement	xxxx
U4. Testing (non-written)	x
U5. Simulation, modeling	x
U6. Interviews (formal)	xxxxx
U7. Conversations (informal)	xx
U8. From existing documents	xxxxxxx
U9. Content analysis	xxxxxxx
U10. Bibliometric techniques	x
U11. Statistical records	xxxxxx
U12. Questionnaires	xxxxxxxxxx
U13. Research diaries	
U14. Delphi techniques	xx
U15. Objective tests (written)	
U16. Sociometric methods	
U17. Projective, indirect methods	
U18. Semantic differential	xx
U19. Q methodology	
U99. Other methods, sources	x

Figure 3. Profile of research methods, continued (each 'x' represents one research project)

V. Analysis methods	
V0. All categories	
V1. Descriptive statistics	xxxxxxxxxxxxxxxxxx
V2. Contingency table analysis	xxxxx
V2.1 Chi-square	xxxxx
V2.2 Phi	
V2.3 Cramer's V	x
V2.4 Contingency coefficient	
V2.5 Lambda	
V2.6 Uncertainty coefficient	
V2.7 Tau b, Tau c	
V2.8 Gamma	x
V2.9 Somer's D	
V2.01 Eta	
V2.09 Other	xx
V3. Measures of central tendency	xxxx
V4. Bivariate correlation analysis	xxxx
V5. Partial correlation analysis	xx
V6. Multiple regression analysis	x
V7. Analysis of variance & co-variance	xxxxx
V8. Discriminant analysis	
V9. Factor analysis	x
V10. Canonical correlation analysis	
V11. Scalogram analysis	
V99. Other methods	x

Figure 4. Analytical Index to specializations (example)

Categories	Persons (hypothetical) 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A. Operations, processes, services																
A1. Organization, administration, management	x								x							
A2. Data processing		x														x
A5. User services (direct)			x					x			x			x	x	x
A13. Systematic bibliography	x											x	x			
A15. Research (in general)				x												
B. Supplies, equipment, technologies, personnel																
B3. Technologies			x													
B5. Personnel	x															
C. Resources, materials											x					
C2. Serial forms																
C4. Nonbook forms														x		
C5.1 Government publications				x												
C8. Materials by subject, etc.																
C8.2 Social sciences		x											x			
D. Libraries, information agencies																
D1. Public			x													
D3. Academic, research	x			x	x						x				x	
D6. Special														x		
D8. Networks						x	x	x								x
							x				x					
E. Users, communities																
E1. Children																
E3. Adults														x		
E4. Older adults										x						
F. Societal roles, relationships																
F6. Relationship with government																
F7. Copyright						x			x							x
F8. Intellectual freedom					x											
G. General orientation, approach																
G1. Librarianship	x	x														
G2. Information Science	x								x		x				x	
G3. Educational media																
M. Education, training in particular operations, aspects			x						x			x		x		
N. Research, design, theory related to particular operations, aspects									x		x					

For example, persons interested in user services in public libraries can be located by finding all columns having an 'x' in row 'A5' for user services and row 'D1' for public libraries. From figure 4, it can be seen that persons 3, 8, 11, 14, 15, and 16 specialize in user services, and persons 3, 5, 6, 11 and 15 specialize in public libraries, so that only persons 3 and 11 specialize in the combination of user services and public libraries. This type of index was used by Libbey and Fry in conjunction with their classification of research affecting military technical information services.[23]

Problems

The biggest problem encountered in the testing of the current third version of CERLIS was the widely varying number of categories indicated by respondents for specializations, courses or research projects. Some of this variation can be due to varying degrees of narrowness or breadth of focus, but much seems to be due to differences with respect to depth of indexing. In other words, respondents appeared to be inconsistent in their inclusion or exclusion of minor aspects. The fault for this lay with the compiler. He gave no direction in this regard. His main concern was the ability of the classification to describe as many specializations, courses or research projects as possible, and from this point of view, the greater the depth of indexing, the better. The more categories indicated without comment, complaint or elaboration, the more certain he could be that they made sense to the user.

However, to be meaningful, a classification must distinguish as well as group. A description of a specialization, course or research project which does not distinguish the major focus from minor and peripheral topics does neither well. In the future, I would recommend that respondents be

asked to indicate only major emphases, and that the number of categories to be indicated for a single specialization, course or research project be limited to a small number, such as 5 or 6. (This restriction should probably not apply to teaching or research methods, as opposed to the content of courses and the subject of research.) The following specializations described by respondents illustrate the use of five or fewer categories. I believe these descriptions are clearer and more meaningful than those including many more categories.

A1A2 D0 [D0 is substituted for D1D2D3D4D5D6D8]: Organization, administration, management. Data processing, automation, computer applications. All types of libraries and information agencies.

A2A10A11 C0: Data processing, automation, computer applications. Subject cataloging. Indexing, abstracting, information storage and retrieval. All types of resources, materials.

A6A7A8 D8: Document delivery, circulation, reprography. Collection development, resource sharing. Collection maintenance, preservation, processing. Networks, systems, consortia, cooperative efforts.

A11A15 B3 G2G5: Indexing, abstracting, information storage & retrieval. Research. Technologies. Information science. Psychology.

A14 B5 G1 J0: Education. Personnel. Librarianship. International, comparative aspects.

A14 G1 H1 M: Education. Librarianship. Intellectual foundation, theory, definition, standards. Education, training [in these operations, aspects].

A15: Research.

C7C8.1 G1: Reference works. Materials in the Humanities. Librarianship.

Another problem is that the classification as currently designed makes no distinction between boolean 'and' and boolean 'or' combinations within facets or sections. Thus 'E3E7' might refer either to handicapped adults or to adults (in general) and handicapped persons (in general). This lack of rigor can create such unclear combinations, but I think the price of

clarity in this regard would be too high, making the classification more complicated than it already is. On the other hand, combinations of categories from different sections or facets are intended to imply boolean 'and' combinations. The introduction in the "Guide to CERLIS" (see Appendix A) states that "each category in each section modifies or limits categories checked in other sections. Thus, if 'user services' is checked in section 'A' and 'public libraries' is checked in section 'D', then the specialization, course or research project is defined as 'user services in public libraries'."

A faceted classification like CERLIS has the great advantage of flexibility and hospitality to an enormous number of compound categories, but it is clear that it takes more thought, time and care to apply than does a simple enumerative classification. If users have too much difficulty in analyzing their specializations, courses and research projects into component aspects and then re-synthesizing a compound description on the basis of a faceted classification, then perhaps self classification should be based on an enumerative classification such as the American Library Association's list of specializations, described earlier in this paper.

Results

The testing of CERLIS indicates that it can be used by educators and researchers in librarianship and information science to describe their specializations, courses and research. One of the most interesting results of the testing was the wide variation in categories used by different persons to describe specializations or courses for which they used the same or similar natural language descriptions. For example, specializations described as "education for librarianship" or "library education" included the following combinations of categories:

A0A14 B0 C0 D0 E0 F0 G1G2 H0 J0J1J2J3J4J5 L0 M N

A14 B5 G1 J0

A14 G1 H1 M

The first two examples include international, comparative aspects (J0). The second and third example are oriented toward librarianship, while the first example includes both librarianship and information science (G1G2). Apart from differences in depth of indexing, one conclusion that might be drawn from this and similar examples is that people mean many different things by commonly used terms, and that a classification such as CERLIS can be used to clarify that meaning. In a similar way, it can be used to indicate the content of courses, content which is not always clearly described by course titles or even catalog descriptions.

GUIDE TO CERLIS: CLASSIFICATION OF EDUCATION AND RESEARCH IN LIBRARIANSHIP AND INFORMATION SCIENCE

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INTRODUCTION

CERLIS (Classification of Education and Research in Librarianship and Information Science) is designed to obtain a fairly broad, but multi-faceted characterization of specializations,* teaching areas and methods, and research in librarianship and information science. Its purpose is to enable the identification and grouping of persons who have similar or related specializations, who teach similar or related courses, or who are engaged in similar or related research. It may be used in directories, such as the annual Directory of the Association of American Library Schools, and in lists of dissertations and other research, with both printed and on-line, machine-readable access.

Different checklists are provided for describing specializations, courses and research projects. A separate checklist should be used for each specialization, course or research project. For each specialization, course or research project, as many categories as apply should be checked, but each category in each section modifies or limits categories checked in other sections. Thus, if "user services" is checked in section A and "public libraries" is checked in section D, then the specialization, course or research project is defined as "user services in public libraries."**

The remainder of this guide consists of scope notes, definitions, explanations, and cross-references for categories listed in the checklists for specializations, courses and research projects.

SECTION A: OPERATIONS, PROCESSES, SERVICES

Includes the basic operations, processes and services of librarianship or information science.

For operations related to specific types of materials, indicate categories of operations in this section and categories of materials in section C.

For operations performed in particular types of libraries or information agencies, indicate categories of operations in

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*A specialization may be interpreted to be any area of interest or expertise narrower in scope than librarianship or information science in general.

**Should be revised, so that only major topics or elements are indicated and the total number of categories is limited to a relatively small number.

GUIDE TO CERLIS

SECTION A: OPERATIONS, PROCESSES, SERVICES, continued

this section and categories of libraries or information agencies in section D.

For operations performed for particular types or groups of persons, indicate categories of operations in this section and categories of persons in section E.

A1. Organization, Administration, Management.

Includes such functions as budgeting and financial administration, evaluation, public relations, marketing or advertising of library or information services, placement and recruiting of personnel, staff relations, collective bargaining, consulting and use of consultants.

For organization, administration or management of particular operations, processes or services, indicate also these operations, processes or services by checking the relevant categories A2 through A15.

For personnel management, check also category B5.

See also categories F3 (relationship of libraries with parent bodies), F4 (relationship of libraries with users and communities), F5 (inter-institutional relationships, e.g. among libraries), and F6 (relationship with government).

A2. Data Processing, Automation, Computer Applications.

Includes the equipment, software and supplies used in these operations (e.g. computers).

Check also categories which contain operations, processes or services to which data processing, computers or automation are applied.

A3. Communication, Information Processes, Theoretical Aspects.

Theoretical aspects of information as process and entity.

See also technologies, e.g. telecommunications, in category B3; disciplinary approaches in section G.

A4. Publishing, Broadcasting.

Publishing, broadcasting, including the press and mass media, as basic processes or operations in communication.

See also category F2 (relationship of libraries, librarianship or information science with publishing, communication media).

GUIDE TO CERLIS

SECTION A: OPERATIONS, PROCESSES, SERVICES, continued

A5. User Services.

Includes such direct services to users as reference and information services, referral services, bibliographic and library use instruction, advisory, guidance and counseling services, bibliotherapy, educational and recreational programming. Also includes tools, resources, etc. used in providing these services.

A6. Document Delivery, Circulation, Reprography.

Includes circulation systems, interlibrary loan and interlibrary loan systems, and the tools, equipment and supplies used in providing these services.

See also technologies in category B3; copyright in category F7; resource sharing in category A7.

A7. Collection Development, Resource Sharing.

Includes selection, acquisition, weeding, evaluation, resource sharing and related cooperative programs, as well as sources and vendors of materials (publishers, jobbers, etc.) and tools, equipment and supplies used in these operations.

See also category D8 (networks, systems, consortia, cooperative efforts).

A8. Collection Maintenance, Preservation, Processing.

Includes physical processing, binding, storage and related equipment and supplies. Also includes agencies performing these functions, e.g. binderies, centralized processing centers (cooperative, commercial).

See also category D8 (networks, systems, consortia, cooperative efforts).

A9. Descriptive Cataloging.

Includes providing access to documents through names of persons and corporate bodies, titles of documents and series, and other bibliographic data (choice and form of entry headings) and the description of documents. Also includes author-title catalogs, cataloging information databases (e.g. OCLC), cataloging codes, centralized cataloging agencies.

See also category D8 (networks, systems, consortia, cooperative efforts).

GUIDE TO CERLIS

SECTION A: OPERATIONS, PROCESSES, SERVICES, continued

A10. Subject Cataloging.

Includes use of subject headings and other "natural language" systems with controlled vocabularies (e.g. PRECIS) and classifications (e.g. Dewey, LC, UDC). Also includes subject catalogs, lists or thesauri of subject terms, and classification schemes.

See also category A11 (indexing). Although there is little or no theoretical distincion between cataloging and indexing, there are frequent differences in emphasis and application.

A11. Indexing, Abstracting, Information Storage and Retrieval.

Includes in-depth analysis and the provision of in-depth access to information in documents using automatic or mechanical methods (e.g. keyword indexing, citation indexing) as well as intellectual, human analysis methods based on controlled vocabularies and/or classification schemes. Also includes abstracts, indexes and files resulting from these operations, as well as file structure, filing and filing rules, and search strategy.

A12. Critical, Analytical, Historical Bibliography.

Includes the general study of the "history of books and printing."

A13. Systematic Bibliography.

Includes descriptive and enumerative bibliography, and the lists of materials these operations produce.

For bibliography limited to particular forms of materials, subjects, places, languages or periods, check also the relevant categories in section C (forms of materials, subjects, languages), section J (places) and section L (time periods).

A14. Education for Librarianship or Information Science (in general).

Includes continuing education, masters, doctoral and other degree programs, in-service training, teaching methods. Use this category only when a principal aspect of your specialization, course, or research is education for librarianship or information science in general. If you focus on education or training in particular operations or aspects of librarianship or information science, do not use this category; instead, indicate the operations or aspects in sections A through L, and then check section M (education in particular operations or aspects).

For education in education for librarianship or information science, however, check both category A14 and section M.

For education and training of library users, see category A5.

GUIDE TO CERLIS

SECTION A: OPERATIONS, PROCESSES, SERVICES, continued

A15. Research in Librarianship or Information Science (in general)

Includes formulation of theory, investigation, development, design, testing. Use this category only when a principal aspect of your specialization, course, or research is research, theory or research methods in librarianship or information science in general. If you focus on research, theory or research methods relating to particular operations or aspects of librarianship or information science, do not check this category; instead, indicate the operations or aspects in sections A through M, and then check section N (research, design, theory relating to particular operations, aspects).

For research on the topic of research in librarianship or information science, check both category A15 and section N.

A99. Other Operations, Processes, Services.

Any operation, process or service which does not fit into any of the above categories may be specified.

SECTION B: SUPPLIES, EQUIPMENT, TECHNOLOGIES, PERSONNEL

This section includes the agents used to perform the operations, processes and services included in section A, with the exception of documentary materials, which are included in section C.

B1. Supplies.

Includes the design or use of expendable materials, as well as vendors of such supplies.

For supplies related to specific operations, processes or services, use categories A1 through A15.

For documentary materials (books, etc.), see section C.

B2. Equipment, Furniture.

Includes design and use. Also includes vendors of equipment and furniture.

For equipment related to specific operations, processes or services, see categories A1 through A15, e.g. for computers, see category A2.

For technologies which may result in particular equipment, e.g. micrographics, see category B3.

GUIDE TO CERLIS

SECTION B: SUPPLIES, EQUIPMENT, TECHNOLOGIES, PERSONNEL, continued

B3. Technologies.

Includes computer technologies, micrographics, educational technology, telecommunications, holography, lasers, fiber optics, etc. and their application to library or information science operations, activities, processes.

For technologies related to specific operations, processes or services, see categories A1 through A15, e.g. for computer technology, see category A2.

For "software" such as microforms, machine-readable programs or databases, audiovisual materials, see section C.

B4. Buildings.

Includes the design (architecture), construction and use of physical plant.

B5. Personnel.

Includes training, recruitment, placement, management and characteristics of personnel engaged in library or information science activities at all levels (professional, para- or pre-professional, clerical), as well as patterns of personnel allocation, personnel needs, the job market, staff associations and unions.

See also category A1 for the process of personnel management and its various aspects.

B9. Other Agents.

Any agent which does not fit into the above categories may be specified.

SECTION C: RESOURCES, MATERIALS

For resources, materials, tools used in particular operations, processes, services, see also section A.

For resources, materials published or originating in particular places, indicate type or form of material in this section and indicate place in section J.

For materials or resources for particular types or groups of users, indicate type or form of material in this section and indicate type or group of user in section E.

C1. Monographic forms.

Does not imply any particular physical form or type of material. See also categories C3 through C9. If both monographic and serial forms are included, categories C1 and C2 may be omitted.

SECTION C: RESOURCES, MATERIALS, continued

C2. Serial forms.

Does not imply any particular physical form or type of material. See also categories C3 through C9. If both monographic and serial forms are included, categories C1 and C2 may be omitted.

C3. Book forms.

C4. Nonbook forms.

For educational technology, micrographics and other technologies, see category B3.

C4.1 Nonbook Print forms.

Includes nonbook materials that are designed to be "read", such as pamphlets, clippings, maps, microforms, printed music, community information files.

C4.2 Audiovisual forms.

Includes materials that are designed to be "looked at" (as opposed to "read") or listened to, such as film media, sound recordings, pictures, realia, holograms.

C4.3 Machine-readable forms.

Includes databases, computer programs.

C5. Non-trade materials.

Includes materials from non-trade sources, meaning any source outside the commercial "book trade". Trade materials is assumed unless this category is checked. This category does not assume any particular physical form or type of material.

C5.1 Government publications.

C5.2 Dissertations, research reports, patents, etc.

C5.3 Archival materials.

C5.4 Manuscripts.

C6. Materials in particular languages or language groups.

Language or language group may be specified.

C7. Reference works.

Includes materials with special forms of presentation designed

GUIDE TO CERLIS

SECTION C: RESOURCES, MATERIALS, continued

C7. Reference works, continued

for consultation when specific information is sought, such as encyclopedias, handbooks, yearbooks, almanacs, statistical compendia, dictionaries, directories, biographical and geographical reference works.

For bibliographies, catalogs and indexes, see categories A9 through A13.

C8. Materials by subject, discipline, profession.

Includes materials related to specific disciplines, subjects or professions.

8.1 Humanities and related subjects, disciplines & professions.

Includes journalism, broadcasting, religious professions.

C8.2 Social sciences and related subjects, disciplines and professions.

Includes librarianship, information science, education, business, law, social work.

C8.3 "Pure" sciences and related subjects, disciplines and professions.

C8.4 Applied sciences, technology and related subjects, disciplines and professions.

Includes medicine, agriculture, engineering, construction.

C8.9 Other subjects, disciplines, professions.

Any subject, discipline or profession which does not fit into the above categories may be specified.

SECTION D: LIBRARIES, INFORMATION AGENCIES

This section includes the institutional settings in which library or information science operations, processes, or services may occur. Throughout this section, the word "library" will be used in its most generic sense, to include any type of information agency.

For libraries specializing in particular subject areas, indicate type of library in this section and indicate subject in category C8.

For libraries serving particular types or groups of persons, indicate the type of library in this section and indicate the type or group of persons in section E.

GUIDE TO CERLIS

SECTION D: LIBRARIES, INFORMATION AGENCIES, continued

See also categories F3 (relationship of libraries with parent bodies), F4 (relationship of libraries with users, communities), F5 (inter-institutional relationships, e.g. among libraries), and F6 (relationship with government).

For the general role of libraries in society, see category F1.

D1. Public libraries.

Includes libraries open to the general public, including society libraries which anyone may join.

D2. School libraries or media centers.

Includes libraries for grades K through high school.

D3. Academic and research libraries.

Includes junior, community and 4-year college libraries, university and research libraries, as well as their departmental libraries.

D4. State, national libraries.

Includes state and national libraries and library or information agencies which primarily serve or operate in relation to other libraries and information agencies. Includes state or national policy making or advisory bodies.

For libraries which serve governments and governmental agencies, see category D6.

D5. Institutional libraries.

Includes libraries which serve institutionalized persons, e.g. in prisons, hospitals.

For libraries serving professional staff in institutions, see categories D3 and D6.

D6. Special libraries.

Includes libraries or information agencies which serve governmental or other non-profit agencies, corporations, businesses, associations, religious organizations, etc.

Use category D3 for academic and research libraries, including their departmental libraries.

D7. Indexing, abstracting services, "information industry", information services.

Includes commercial or non-commercial agencies which gather, index, abstract, analyze, and/or summarize informational

GUIDE TO CERLIS

SECTION D: LIBRARIES, INFORMATION AGENCIES, continued

D7. Indexing, abstracting services, "information industry", information services, continued

documents for other libraries that subscribe to their services. These agencies may also serve individuals directly, but then the distinction between them and other types of libraries, especially special libraries, becomes vague. Include free-lance librarians and other information specialists and their services here.

D8. Networks, systems, consortia, cooperative efforts.

When these involve libraries of particular types, indicate the type of library in categories D1 through D7.

See also category F5 (inter-institutional relationships, e.g. among libraries).

D9. Other types of libraries or information agencies.

Any type which does not fit into the above categories may be specified.

SECTION E: USERS, COMMUNITIES

This section includes target communities, users (both actual and potential) and clientele of libraries and information agencies and their services. It includes the needs for or utilization of library or information service, and the analysis of these needs (e.g. community analysis).

For persons as staff members of libraries or information agencies, librarians, information professionals, etc. use category B5.

E1. Children.

E2. Young Adults.

E3. Adults.

E4. Older adults.

E5. Ethnic groups, minorities.

Particular ethnic groups or minorities may be specified.

E6. Groups based on sexual gender or orientation.

Particular groups may be specified, e.g. women.

E7. Handicapped persons.

Type of handicap may be specified.

GUIDE TO CERLIS

SECTION E: USERS, COMMUNITIES, continued

E8. Persons by subject, discipline, profession, occupation.

E8.1 Persons engaged in the humanities and related disciplines, professions, occupations.

Includes journalism, broadcasting, religious professions.

E8.2 Persons engaged in the social sciences and related disciplines, professions, occupations.

Includes librarianship, information science, education, business, law, social work.

E8.3 Persons engaged in the "pure" sciences and related disciplines, professions and occupations.

E8.4 Persons engaged in the applied sciences and technology and related disciplines, professions and occupations.

Includes medicine, agriculture, engineering, construction.

E8.9 Persons engaged in other disciplines, professions and occupations.

Any discipline, profession or occupation which does not fit into the above categories may be specified.

SECTION F: SOCIETAL ROLES AND RELATIONSHIPS

Throughout this section, the term "library" is used in its most generic sense, indicating any type of information agency.

For societal roles and relationships of particular types of libraries, indicate roles and relationships in this section and indicate types of libraries in section D.

F1. Of librarianship, information science in general.

Includes the general role of libraries, librarianship or information science in society.

F2. Relationship with publishing, communication media.

Includes the relationship of libraries, librarianship or information science with publishing, mass media, and other communication activities, organizations and processes.

F3. Relationship of libraries with parent bodies.

F4. Relationship of libraries with users, potential users, communities.

Types of users may be indicated in section E; types of libraries in section D.

GUIDE TO CERLIS

SECTION F: SOCIETAL ROLES AND RELATIONSHIPS, continued

F5. Inter-institutional relationships (e.g. among libraries).

F6. Relationship with government.

F7. Copyright.

F8. Intellectual freedom, censorship.

F9. Other roles, relationships.

Any role or relationship which does not fit into the above categories may be specified.

SECTION G: GENERAL ORIENTATION, APPROACH

Includes the disciplines or professions with which a specialization, course or research is closely associated, as well as approaches or contributions of other disciplines or professions to the study and understanding of librarianship or information science.

For research methods used in research projects, see also sections S (general research methods), T (case selection methods), U (data collection methods), and V (analysis methods) in the research project checklist.

G1. Librarianship.

G2. Information Science.

G3. Educational Media.

G4. Communications.

G5. Psychology.

G6. Sociology.

G7. Political Science.

G8. Economics.

G9. Other disciplines or professions.

Any discipline or profession not included in the above list may be specified.

GUIDE TO CERLIS

SECTION H: DISCIPLINARY, PROFESSIONAL ASPECTS

This section includes the nature and organization of librarianship or information science as discipline or profession.

H1. Intellectual foundation, theory, definition, standards.

Includes general efforts at standardization. For standardization relating to particular operations or aspects, use the category for that operation or aspect.

For theory relating to particular aspects of librarianship or information science, see section N.

H2. Organizations, institutions.

Includes organizations, societies, associations and institutions related to the discipline or profession.

For educational institutions, see also category A14.

H3. Qualifications of members.

Includes certification, licensing of members.

For accreditation of educational programs, see category A14.

H9. Other disciplinary or professional aspects.

Any aspects not included in the above categories may be specified.

SECTION J: GEOGRAPHICAL, COMPARATIVE ASPECTS

J0. International, comparative aspects.

J1. Urban areas.

J2. Suburban areas.

J3. Rural areas.

J4. USA and Canada.

J5. Europe and the Soviet Union.

J6. Latin America and the Caribbean.

J7. Africa and Asia.

J8. Australia, New Zealand and the Pacific.

J9. Other areas, types of areas.

Any area or type of area which does not fit into any of the above categories may be specified.

GUIDE TO CERLIS

SECTION K: BIOGRAPHICAL EMPHASIS

Use for specializations, courses or research which focus on the role of particular persons or groups of persons.

SECTION L: HISTORICAL EMPHASIS, PERIODS

L1. Ancient, to ca. 500 A.D.

L2. ca. 500-1500.

L3. ca. 1500-1600.

L4. ca. 1600-1700.

L5. ca. 1700-1800.

L6. ca. 1800-1900.

L7. ca. 1900-

SECTION M: EDUCATION AND TRAINING IN PARTICULAR OPERATIONS OR ASPECTS (as indicated in sections A through L)

Includes continuing education, masters, doctoral and other degree programs, in-service training, teaching methods relating to particular operations or aspects of librarianship or information science, as indicated in sections A through L.

For education and training in librarianship or information science in general, use category A14.

For education in education for librarianship or information science, use both category A14 and section M.

SECTION N: RESEARCH, DESIGN, THEORY RELATED TO PARTICULAR ASPECTS (as indicated in sections A through M)

Includes formulation of theory, investigation, development, design, testing related to particular operations or aspects of librarianship or information science, as indicated in sections A through M.

For research in librarianship or information science in general, use category A15.

For research on research or research methods in librarianship or information science, use both category A15 and section N.

SECTIONS P (Teaching methods), Q (Teaching Aids), and R (Evaluation of students) are included only in the Course Checklist, and are not listed here.

SECTIONS S (General research methods), T (Case selection methods), U (Data collection methods) and V (Analysis methods) are included only in the Research Checklist, and are not listed here.

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